

WildlifeExpress

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HUMMINGBIRDS

Rufous Hummingbird Photo: CC-BY John Gerlach at Flickr.com

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MEET THE HUMMINGBIRDS

Hummingbirds are one of the delights of summer. Their nearly constant zipping around the yard can be very entertaining to watch. When the sun shines on a hummingbird's feathers, you can see why they have so many beautiful nicknames---woodstar, mountain gem, sunbeam, and sun angel to name a few. This fascinating group of birds is found only in the New World. Unless you live in North or South America, you will not see hummingbirds.

Approximately 340 different species belong to the hummingbird family. Most of them live in warm tropical places near the Equator. Here in the United States, 19

different hummingbirds can be found. Five of these hummingbirds can be seen in Idaho. These include rufous, calliope, broad-tailed, black-chinned and occasionally, Anna's hummingbirds.

Hummingbirds are known for being quite small. The smallest is the bee hummingbird.

This tiny bird is about two and one-quarter inches long and lives in Cuba. On the large end is the giant hummingbird. This nine-inch hummingbird lives in the South American Andes. Here in the U.S., most hummingbirds are about four inches long. Read on to learn about the amazing lives of hummingbirds.



LIFE IN THE FAST LANE




Watching a hummingbird zipping around your yard can be exhausting. They seem to always be on the move. How can such a small bird have so much energy? Like many small, warm-blooded animals, hummingbirds have a very high metabolism (met-TAA-bowl-ism). This means that all their body functions like digestion, respiration and blood circulation happen very quickly. Hummingbirds have metabolisms that are the fastest of the fast. Their resting heart rate is close to 1000 beats per minute. They breathe about 250 times each minute, and their body temperature is around 104 degrees.

Contrast these numbers with yours. Your heart beats about 70 beats per minute. You breathe 12 to 20 times a minute and your normal body temperature is 98.6 degrees. Now imagine if your metabolism was as fast as a hummingbird's. Your heart and breathing rates would go way up, causing your body temperature to rise to 752 degrees! To keep yourself alive, you would need to eat twice your weight in food every day. A 60-pound fourth grader would need to eat 120 pounds of food each day.

How do hummingbirds maintain their high metabolism? They eat flower nectar. Nectar is full of sugar, giving the birds quick energy. However, this energy does not last long. This means that hummingbirds spend most of their time eating just to stay alive. Since nectar does not contain protein and minerals, hummingbirds also eat tiny insects.

Having such a high metabolism can make nighttime hard for hummingbirds. These birds do not have much stored fat or any insulating down feathers to keep them warm at night. Up in the mountains it can get cold at night, even in the summer. To cope with this cold, hummingbirds go into a kind of nighttime hibernation called torpor. During torpor, a hummingbird's metabolism slows down. Its heart beats slowly; it breathes slowly; and its temperature drops. The bird uses very little energy. When morning comes, the hummingbird comes out of torpor quickly. Then it is off to spend another day zipping around to find the energy it needs to survive.



An adaptation is a physical characteristic or behavior that helps an animal survive.

ADAPTATIONS OF HUMMINGBIRDS

Hummingbirds have some amazing adaptations. The long beaks and tongues of hummingbirds are adaptations for probing into long flowers to find nectar. Some hummingbirds have shorter beaks; they feed on smaller flowers. Here in Idaho, tiny calliope hummingbirds have shorter beaks than other Idaho hummingbirds. This allows them to feed on flowers with short tubes like scarlet gilia (hill-EE-a). Black-chinned hummingbirds, on the other hand, have longer beaks. They can easily reach the nectar in large flowers like penstemon (PEN-stem-on). Having different beak lengths helps make sure that the two different kinds of hummingbirds can both find food in the same habitat.

A hummingbird's tongue works with the bird's beak while it eats. It is twice the length of the beak. This makes it the perfect tool to reach nectar in long flowers. But how does that long tongue fit back inside the bird's mouth? When at rest, the tongue wraps under the bird's jaw,

going behind and over the bird's skull. This is an adaptation called the hyoid apparatus. It lets long-tongued birds like hummingbirds and woodpeckers reach the food they need. It also protects the tongue when the bird is not eating.

Tropical hummingbirds have a variety of beak lengths and shapes depending upon the species of bird. This lets them get nectar from many kinds of tropical flowers. Andean swordbills are a kind of hummingbird that lives in the South American country of Columbia. This bird has a beak that is almost four and one-half inches long! It turns out that a special kind of passionflower grows where the swordbill lives. This flower's tube is the same length as the swordbill's beak. The flower and bird are adapted to one another.

Hummingbird adaptations do not stop at cool beaks. Like all birds, they can fly forward but they can also hover. Hummingbirds are also

the only kind of bird that can fly backwards. Being able to fly in so many directions helps hummingbirds reach the flower nectar they need.

Hummingbirds can fly in so many different directions because of their wings. They are long and pointed and rotate at the shoulder. The wrist and elbow hardly move at all. When a hummingbird hovers, its wings make a horizontal figure eight as they beat. This motion makes the wings act like oars in the air. This allows the hummingbird to stay in one place while it eats. Powerful pectoral or chest muscles beat a hummingbird's wings 70 to 80 times in one second. In most birds, the pectoral muscles make up 15 to 20 percent of a bird's body mass. In hummingbirds, pectoral muscles make up 30 percent of their body mass!



Rufous Hummingbird Photo: CC-BY Catherine Zinsky

Another amazing hummingbird adaptation is its brain. Hummingbirds have the largest brains of any bird when compared to the bird's body size. This big brain gives hummingbirds excellent memories. Having an excellent memory helps hummingbirds remember good food sources and nesting places. This means that the hummingbirds you saw at your feeder last summer might be the same ones you will see again this summer.



Male Rufous Hummingbird Photo: CC-BY Jim Gillum @ Flickr.com

ADAPTATIONS OF HUMMINGBIRD FLOWERS

Hummingbirds are not the only ones with cool adaptations. Flowers that depend upon hummingbirds have evolved some fancy adaptations of their own. Over 130 different flowers in western North America are “hummingbird” flowers. These flowers need hummingbirds to pollinate them. They do everything they can to make sure hummingbirds find them.

Color is an important adaptation for flowers. Red and yellow are easily seen by hummingbirds, but not by most insects. Many hummingbird flowers droop down toward the ground. Drooping flowers do not give insects the landing pad they need to land on a flower. But hummingbirds can easily hover in front of drooping flowers. Hummingbird flowers

usually do not have a strong odor. Smelly flowers attract insects, not hummingbirds. Hummingbird flowers also contain large amounts of nectar to attract the birds. Hummingbird flowers advertise their large amounts of nectar by color and flower shape.

All these adaptations seem like a lot of work just to attract hummingbirds. This is important because hummingbirds pollinate the flowers. As a hummingbird eats, its head and face brush against pollen. When the bird moves from one flower to another it brushes against more pollen. Pollen from different flowers is exchanged. By pollinating its food source, the hummingbirds make sure that they will have food again next year.





FILL THE BILL

Exactly how hummingbirds eat was once quite a mystery. It was thought that a hummingbird's beak and tongue acted like a straw. That made sense because of their liquid diet. However, studies showed that this was not correct. Scientists then discovered that the tips of hummingbird tongues have special hair-like extensions called lamellae (lamb-EL-lee). Ah-ha! Maybe hummingbird tongues used capillary action to soak up the nectar? Capillary action happens when you soak up water with a towel. The water moves up through tiny spaces in the fabric. Well, bang went that theory when scientists began using cameras to film hummingbirds eating. Slow-motion and close-up views finally solved the mystery.

The scientists discovered that hummingbird tongues act like tiny pumps, drawing nectar into the bird's mouth. Hummingbird tongues separate into two tips at the end. This is where the lamellae are found. When a hummingbird eats, its tongue tips separate and the lamellae extend outward. As the bird pulls its tongue back inside its beak, the tips come together and the lamellae roll up. This traps the nectar. Once the beak closes, the nectar is squeezed into the bird's mouth. The tongue and all its parts act like a nectar trap, grabbing the liquid. While this seems complicated, it is very efficient for the hummingbirds. They can drink at a rate of 18 slurps per second!

GLITTERING FEATHERS

Hummingbirds are often called feathered jewels. They shine and glitter in the sun with incredible colors. Most of these colors are on the throat or gorget (GORE-jet) of the male. He turns, catching the sun so the feathers shine and shimmer. Sometimes, he puffs out his gorget to show off for a female or intimidate another male. Then suddenly the hummingbird turns his head, and the beautiful colors are gone. What happened?

The shiny metallic colors you see are caused by iridescence (EAR-a-DES-sense). Iridescence is caused by the way light hits the feathers. Light is made of waves. These waves have different sizes or lengths. When wavelengths hit a feather, they are reflected (like with a mirror or soap bubble) or broken apart. This makes some wavelengths stronger and others weaker. The weak wavelengths can no longer be seen.

Feathers become iridescent when they have a fine coating on them. This coating acts like a soap bubble to reflect light. When light hits a feather, the coating scatters the light. We see the brilliant shimmering colors reflected back at us. But we can only see the colors when the light hits the feather at just the right angle. When the bird

moves, the light changes and the iridescence disappears.

Gorget colors can help you identify Idaho's hummingbirds. Calliope hummingbirds have a gorget that is made up of purplish-red stripes, like a peppermint candy. Rufous hummingbirds have a bright metallic flame-colored gorget. If you see a hummingbird with a rosy-red gorget, it is a broad-tailed hummingbird. The black-chinned hummingbird has a gorget with two colors. Like its name, the chin of this bird is a beautiful velvet-black. Underneath the black is a band of violet feathers.



HUMMINGBIRDS IN WINTER?

Strange as that sounds, Anna's hummingbirds have been spending the winter in parts of Idaho for almost ten years.



Boise State University's Intermountain Bird Observatory first began banding these winter hummingbirds in 2015. At that time, they only found a few birds each winter. Fast forward to today, and the observatory staff is banding around 200 hummingbirds each winter. These birds have been found in Boise, New Meadows and even Hailey. Anna's hummingbirds have even been reported in Idaho's panhandle.

Scientists are not sure why these hummingbirds have decided that Idaho is a great winter vacation spot. We can get some hints by looking at the way this species has expanded where it lives. Back in the early 1900s, Anna's hummingbirds were only found in the U.S. along the California-Mexico border. As cities were built, the birds started to be seen farther north along the California coast. By the 1970s, they were in British Columbia, Canada. Idaho's first recorded Anna's hummingbird was spotted in 1976.

It is believed that the communities people built allowed Anna's hummingbirds to expand their range. People planted non-native plants that flowered earlier and longer than the native species. This gave the hummingbirds more food over a longer period of time. As people planted these plants farther north, the birds followed. With plenty of nectar and tiny insects to eat, Anna's hummingbirds were able to adapt to cooler temperatures. Hummingbird feeders probably also helped the birds survive. All these factors helped Anna's hummingbird expand its range north in just over a century. We might never fully understand why Anna's hummingbirds have started spending the winter in Idaho. We do know that seeing a hummingbird perched on a snow-covered branch in January is pretty amazing.

IDAHO'S HUMMINGBIRDS



Black-chinned hummingbird

- Named for the males' black and violet gorget.
- The most common hummingbird in Idaho at lower elevations.
- Catches insects in flight.
- Winters in Mexico.

Black-chinned Hummingbird Photo: CC-BY Chuck Roberts at Flickr.com

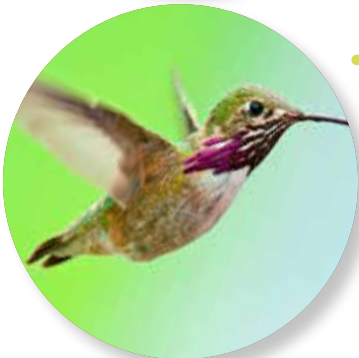
Broad-tailed Hummingbird Photo: CC-BY John Gerlach at Flickr.com

Calliope Hummingbird Photo: CC-BY Marsha White at Flickr.com



Broad-tailed hummingbird

- Nests at elevations as high as 10,500 feet.
- Large hummingbird at four inches long.
- The male has a rosy-red gorget, green back and orangish sides.
- Males make a metallic trilling sound with their wingtips when they fly, especially during the breeding season.
- Found mainly across southern Idaho.



Calliope hummingbird

- The smallest bird in North America, measuring just over three inches long.
- Males are easily identified by their small size, bright greenish backs and throat striped in red like a peppermint candy.
- Travel nearly 5400 miles each year migrating from winter homes in southern Mexico to nest in the northern Rocky Mountains.

Rufous hummingbird

- Named for the orangish coloration of the males.
- Migrate in an oval pattern traveling north in the spring along the Pacific Coast, but following the Rocky Mountains as they migrate south in late summer.
- Male rufous hummingbirds are highly territorial and will defend feeders from other hummingbirds.
- Nest as far north as Alaska.



Rufous Hummingbird Photo: CC-BY Catherine Zinsky

Anna's Hummingbird Photo: CC-BY Isu Nuzzi at Flickr.com

Anna's hummingbird

- Idaho's only overwintering hummingbird.
- Males have a rose-colored gorget as well as red on the crown of their head.
- Is one of the only hummingbirds that sings.
- Their brain has an enlarged vocal center that other hummingbirds lack.



THE TINIEST OF NESTS

Like many birds, hummingbirds come to Idaho to nest and raise their babies. Male hummingbirds arrive first and set up a territory. As soon as the females arrive, the males begin to show off. They fly 90 feet up in the air and then dive down toward the ground before arcing up again, making a big “U” shape in the sky near a female. The males often make a variety of sounds at the bottom of their dive. These sounds come from the way the air moves through the male’s tail feathers. Sometimes male hummingbirds fly back and forth right in front of a female, making a variety of buzzing sounds. This is called a hover display.

If the female is impressed, the pair will mate. Female hummingbirds take care of all the nest-building, incubation and raising the young hummingbirds. As you might expect, their nests

are tiny, about the size of a walnut. Nests are often built on a branch that has another branch above it. This protects the nest from rain and provides shade. Hummingbird nests are very well camouflaged. Females decorate the outside of the nest with lichen, moss, or bark, held together with spider silk. The inside of the nest is downy and soft because it is lined with plant fibers, animal hair and feathers. Two white eggs the size of small jellybeans are laid in the nest. After hatching, the young hummingbirds are fed insects by the female. Insects provide the protein young hummingbirds need to grow rapidly. They are ready to leave the nest in about 21 to 25 days. Young hummingbirds will spend the rest of the summer getting ready to migrate. Adult hummingbirds migrate before the youngsters. Watch for young birds at your feeders starting in mid-July.



Rufous Hummingbird on the Nest Photo: CC-BY Tom Malinski at Flickr.com

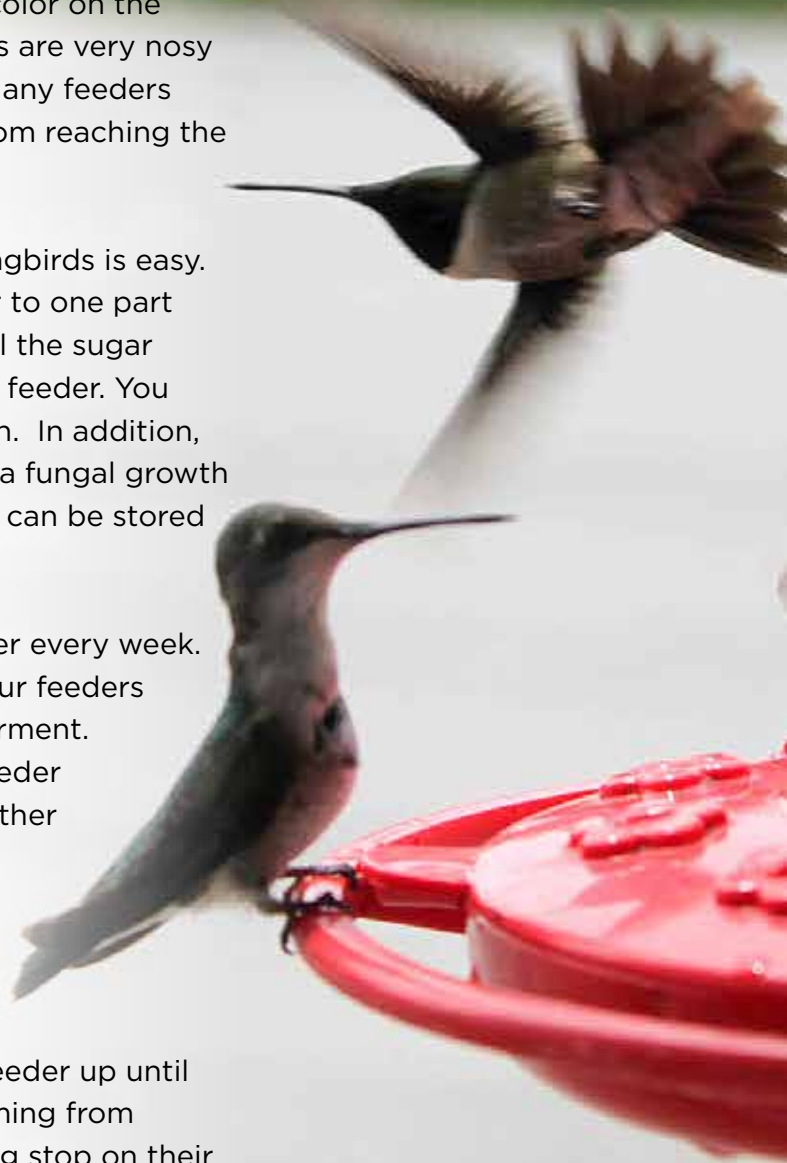
Feeding Time!

One of the best ways to observe Idaho's hummingbirds is to put up a hummingbird feeder. These little birds are quite fearless and easily attracted to feeders. Planting some native hummingbird flowers in your yard can help attract them to your feeder. Many garden centers sell hummingbird feeders, and you can also purchase them online. Make sure to buy a feeder with a glass reservoir. Glass is easier to keep clean and is long-lasting. Your feeder should have red plastic feeding ports that are usually shaped like flowers. This red color on the feeder will help attract the hummingbirds. Hummers are very nosy and will check out just about anything that is red. Many feeders also have yellow bee guards. These prevent bees from reaching the food.

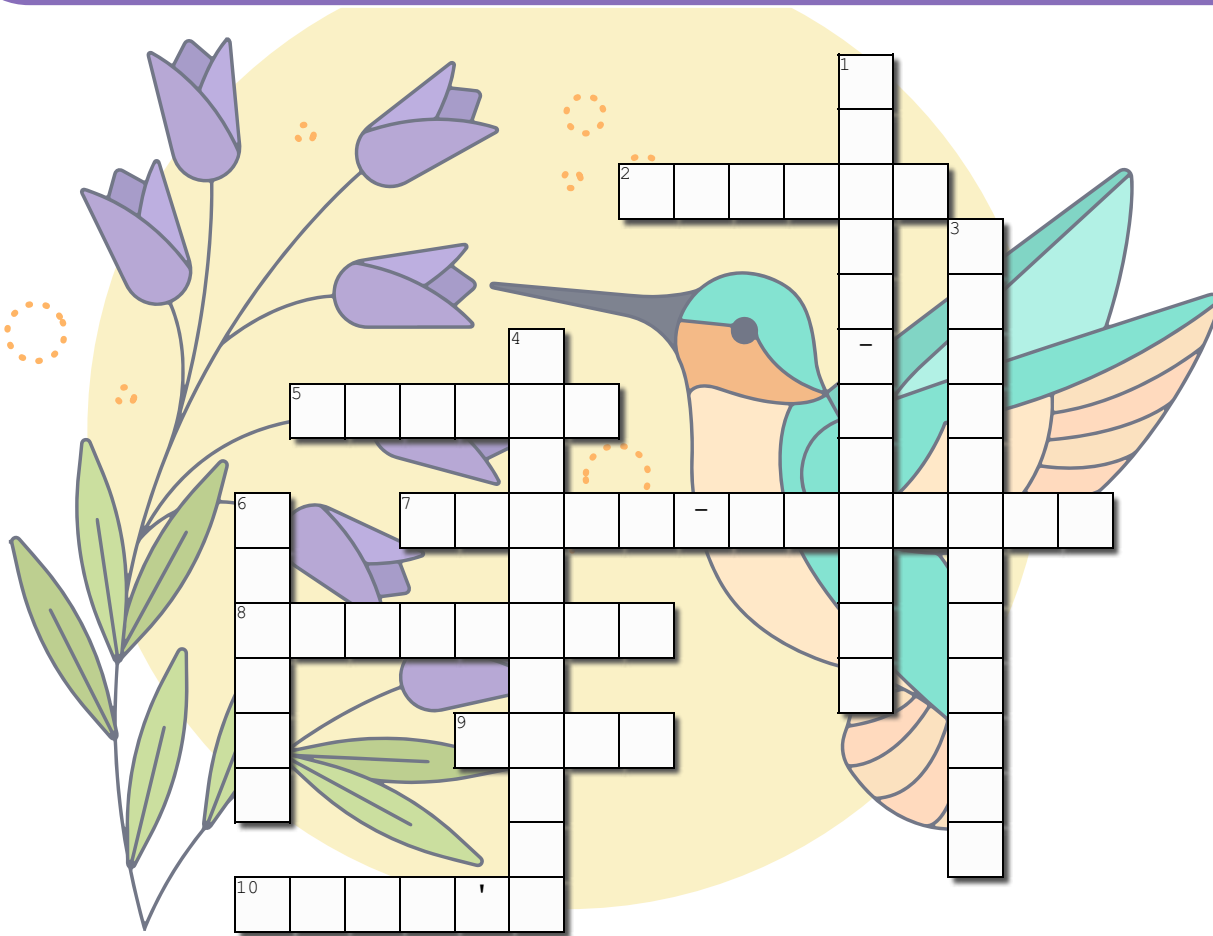
Making the proper sugar-water solution for hummingbirds is easy. Mix a solution made from a ratio of four parts water to one part sugar. Heat the water, add the sugar and stir until all the sugar is dissolved. Let the solution cool before filling your feeder. You should not add any red food coloring to the solution. In addition, never use honey instead of sugar. Honey can cause a fungal growth in the mouth that can kill the bird. Leftover solution can be stored in a jar in the refrigerator.

Be sure to change the solution and clean your feeder every week. During hot weather you should empty and clean your feeders more frequently. The heat can cause the food to ferment. If you have quite a few hummingbirds using your feeder or a single male is defending the feeder, put up another feeder across the yard. This will let more birds get some food. Spend some time just watching the feeders. Hummingbirds are endlessly interesting, and you will enjoy watching their behaviors.

As summer winds down, leave your hummingbird feeder up until the end of September. Migrating hummingbirds coming from farther north will find your feeder a welcome feeding stop on their journey south.



HANDSOME HUMMINGBIRDS



Created using the Crossword Maker on TheTeachersCorner.net

Across

2. A type of nighttime hibernation that helps conserve energy.
5. The name given to a male hummingbird's throat
7. Catches insects while flying.
8. Idaho's smallest hummingbird.
9. Hummingbirds hold their nests together with spider _____.
10. You might see this hummingbird in Idaho during the winter.

Down

1. Idaho's largest hummingbird.
3. The only birds that can fly backwards.
4. Hummingbirds have super fast _____.
6. The main food source for hummingbirds.

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WE WOULD LIKE TO HEAR FROM YOU!

If you have a letter, poem or question for Wildlife Express, it may be included in a future issue! Send it to: adare.evans@idfg.idaho.gov or Wildlife Express, Idaho Fish and Game PO Box 25, Boise, ID 83707